

The following claims are presented for examination:

**1. (Currently Amended)** A method ~~for estimating a location of a wireless terminal, said method~~ comprising:

~~defining a rasterized footprint of a building, wherein said rasterized footprint comprises a plurality of rasters, and wherein said rasterized footprint has a boundary and an interior, and~~

estimating the signal attenuation of a signal between a first location and a second location due to ~~[[said]] a building, wherein the estimate of signal attenuation is~~ based directly on ~~signal losses at a first group of said rasters, wherein said rasters in said first group define said boundary of said a rasterized raster~~ footprint of said building;

wherein said first location is within said building and said second location is outside of said building.

**2. (Currently Amended)** The method of claim 1 wherein said raster footprint of said building comprises a plurality of exterior rasters and a plurality of interior rasters. ~~estimating signal attenuation further comprises basing the estimate of signal attenuation on signal losses at a second group of said rasters, wherein said rasters in said second group define said interior of said rasterized footprint.~~

**3. (Currently Amended)** The method of claim 2 further comprising determining a depth of ~~[[said]] a~~ raster within said ~~rasterized raster~~ footprint,

wherein said depth of said raster is defined by a layer number,  $L$ ;

wherein rasters ~~defining said boundary in said plurality of exterior rasters~~ have a layer number,  $L=1$ ;

wherein rasters ~~defining said interior in said plurality of interior rasters~~ have a layer number  $L = 2$  to  $n$ , wherein  $n$  is a positive integer; and

wherein signal attenuation at layer  $L = m$ , wherein  $m \geq 2$ , is based on the signal losses at layers  $L = 1$  through  $m-1$ .

**4. (Currently Amended)** The method of claim 1 wherein estimating the signal attenuation of said signal further comprises accounting for an effect of building orientation with respect to ~~a direction of signal propagation on signal losses at said first group of rasters~~ said first location and said second location .

**5. (Canceled)** The method of claim ~~[[2]]~~ 1 wherein said raster footprint of said building comprises a plurality of exterior rasters; and

wherein estimating the signal attenuation of said signal further comprises accounting for an effect of building orientation with respect to ~~a direction of signal propagation on signal losses at said second group of rasters~~ (i) a direction between said first location and said second location, and (ii) said plurality of exterior rasters.

**6. (Currently Amended)** The method of claim ~~[[4]]~~ 1 wherein said raster footprint of said building comprises a plurality of interior rasters; and

wherein estimating the signal attenuation of said signal further comprises accounting for an effect of building orientation with respect to ~~a direction of signal propagation on signal losses at said second group of rasters~~ (i) a direction between said first location and said second location, and (ii) said plurality of interior rasters.

**7. (Currently Amended)** The method of claim ~~[[2]]~~ 1 further comprising developing a map from the estimate of signal attenuation, wherein said map associates location within said building with an indicator of signal attenuation.

**8. (Original)** The method of claim 7 further comprising using the signal-attenuation information from said map to adjust signal-strength estimates that are obtained from an outdoor radio frequency database.

**9. (Original)** The method of claim 8 further comprising:

receiving a first signal-strength measurement for a first signal at said wireless terminal; and

estimating the location of said wireless terminal by pattern matching a function of said first signal-strength measurement against the adjusted signal-strength estimates.

**10. (Currently Amended)** ~~[[A]] The method for estimating a location of a wireless terminal, said method comprising:~~ of claim 1 wherein said raster footprint of said building comprises a boundary, a plurality of exterior rasters, and a plurality of interior rasters; and

~~defining a rasterized footprint of a building, wherein said rasterized footprint comprises a plurality of rasters, and wherein said rasterized footprint~~

~~has a boundary and an interior, and further wherein rasters at said boundary of said rasterized footprint define a first group of rasters, and~~

estimating the signal attenuation of a signal between a first location and a second location due to ~~[[said]]~~ a building, ~~wherein the estimate of signal attenuation is based on signal losses in a second group of said rasters, wherein said rasters in said second group are in said interior of said rasterized footprint.~~ based on an angle of incidence between (i) a signal vector between said first location and said second location, and (ii) an estimate of a surface vector of a first raster where said signal vector intersects said boundary.

**11. (Currently Amended)** The method of 10 further comprising determining a depth of ~~[[said]]~~ a second raster within said interior of said ~~rasterized raster~~ footprint, wherein said depth of said second raster is defined by a layer number,  $L$ ; wherein rasters ~~defining said boundary in said plurality of exterior rasters~~

have a layer number,  $L=1$ ;

wherein rasters ~~within said interior in said plurality of interior rasters~~ have a layer number  $L = 2$  to  $n$ , wherein  $n$  is a positive integer; and

wherein signal attenuation experienced at layer  $L = m$ , wherein  $m \geq 2$ , is based on the signal losses at layers  $L = 1$  through  $m-1$ .

**12. (Currently Amended)** The method of claim 10 wherein estimating the signal attenuation of said signal further comprises accounting for an effect of building orientation with respect to a direction of signal propagation on signal losses at said second group of rasters.

**13. (Original)** The method of claim 10 further comprising adjusting signal-strength estimates obtained from an outdoor radio frequency database using the estimates of signal attenuation within said building.

**14. (Original)** The method of claim 13 further comprising receiving a first signal-strength measurement for a first signal at said wireless terminal; and

estimating the location of said wireless terminal by pattern matching a function of said first signal-strength measurement against the adjusted signal-strength estimates.

**15. (Currently Amended)** A method ~~for estimating a location of a wireless terminal, said method~~ comprising:

~~defining a rasterized footprint of a building, wherein said rasterized footprint comprises a plurality of rasters, and wherein said rasterized footprint has a boundary, an interior, and an exterior; and~~

estimating the signal attenuation of a signal between a first location and a second location due to a building based on a raster footprint of said building;

wherein said first location is within said building and said second location is outside of said building;

wherein said raster footprint of said building comprises a boundary, a plurality of exterior rasters, and a plurality of interior rasters; and

wherein estimating ~~the~~ signal attenuation ~~of said signal due to said building by estimating an angle of incidence of a signal with said building, wherein said signal is transmitted from a transmitter, and wherein~~ comprises estimating ~~[[said]] an~~ angle of incidence ~~with said building comprises estimating a surface vector of a raster at~~ between (i) a signal vector between said first location and said second location, and (ii) an estimate of a surface vector of a first raster where said signal vector intersects said boundary.

**16. (Canceled).**

**17. (Previously Presented)** The method of claim 15 wherein said surface vector is estimated using at least one raster at said exterior of said raster footprint that is adjacent to said raster at said boundary.

**18. (Currently Amended)** The method of claim 15 wherein estimating signal attenuation further comprises estimating ~~[[a]]~~ said signal vector of said raster at said boundary, wherein said signal vector points toward said transmitter from said raster.

**19. (Currently Amended)** The method of claim 18 wherein estimating signal attenuation further comprises determining ~~[[a]]~~ angular difference between said surface vector and said signal vector.

**20. (Original)** The method of claim 15 further comprising assigning an attenuation value to a raster at said boundary as a function of said angle of incidence of said signal.

**21. (Currently Amended)** A method ~~for estimating a location of a wireless terminal, said method~~ comprising:

~~defining a rasterized footprint of a building, wherein said rasterized footprint comprises a plurality of rasters, and wherein said rasterized footprint has a boundary, an interior, and an exterior; and~~

estimating the signal attenuation of a signal between a first location and a second location due to a building based on a raster footprint of said building;

wherein said first location is within said building and said second location is outside of said building;

wherein said raster footprint of said building comprises a boundary, a plurality of exterior rasters, and a plurality of interior rasters; and

wherein estimating the signal attenuation of said signal due to said building, wherein the estimated signal attenuation is a function of signal losses that occur within said building, which losses are a function of an angle of incidence of a signal with respect to said building, wherein said signal is transmitted from a transmitter, and wherein estimating signal attenuation comprises estimating a surface vector of a raster within an interior of said raster footprint. comprises estimating an angle of incidence between (i) a signal vector between said first location and said second location, and (ii) an estimate of a surface vector of a first raster in said plurality of interior rasters that intersects said signal vector.

**22. (Canceled)**

**23. (Currently Amended)** The method of claim 21 further comprising determining a depth of ~~[[said]]~~ a second raster within said interior;

wherein said depth of said raster is defined by a layer number,  $L$ ;

wherein rasters within said plurality of interior rasters have a layer number  $L = 2$  to  $n$ , wherein  $n$  is a positive integer; and

wherein said surface vector of a raster at layer  $L = m$ , where  $2 \leq m \leq n$ , is estimated using at least one raster at layer  $L = m-1$  that is adjacent to said raster at layer  $L = m$ .

**24. (Canceled)**

**25. (Canceled)**

**26. (Original)** The method of claim 21 further comprising assigning an attenuation value to a raster at said boundary as a function of said angle of incidence of said signal.

.....

**27. (Previously Presented)** A method for estimating a location of a wireless terminal, said method comprising:

accessing an outdoor radio frequency database, wherein said outdoor radio frequency database provides signal strength as a function of location; and  
modifying said signal strength, as provided by said outdoor radio frequency database, with signal-attenuation values from an indoor radio frequency database, wherein said indoor radio frequency database provides signal attenuation, as determined by a raster map of said structure, as a function of location within a structure.

**28. (Original)** The method of claim 27 further comprising:  
receiving a first signal-strength measurement for a first signal at said wireless terminal; and  
estimating the location of said wireless terminal by pattern matching a function of said first signal-strength measurement against signal-strength data from said outdoor radio frequency database, as modified by said indoor radio frequency database.

**29. (Original)** The method of claim 27 wherein said signal-attenuation values from said indoor radio frequency database are orientation-independent.

**30. (Canceled)**